

ABSTRACT

The invention comprises a system and method for reducing a shot noise component of the Angle Random Walk Noise in a fiber optic sensor by providing a first optical amplifier prior to the photodetector of the sensor to increase the power seen at the detector. An optical amplifier and second detector may be provided to detect a source sample, which can be useful in reducing RIN noise. Optical isolators may be added at the optical amplifiers to prevent rear facet emissions from the optical amplifiers from affecting sensor signals. A coupler with an isolator, amplifier and detector may be provided to receive a sample of the facet emissions from the first optical amplifier, which may be subtracted from the sensor signal at the detector so as to eliminate the facet emissions from the sensor signals. Polarizers may be provided prior to each detector to further eliminate emissions.